

Renal cell carcinoma (RCC) is the most common type of kidney cancer. It's made up of a genetically, molecularly, and clinically diverse range of subtypes, all that stem from abnormal cell proliferation in the tubule linings of the kidneys. Clear cell RCC accounts for roughly 75% of diagnosed cases, papillary RCC for 15-20%, and the remaining 3 subtypes – chromophobe, collecting duct, and unclassified RCC – the last 5-10%.<sup>1</sup>

The average age at diagnosis is 64 years, putting RCC among the top 10 most common cancers in older adults. Historically, median survival time was around 12-14 months, but thanks to targeted and combination therapy, the most recent studies put it at more than 3 years.<sup>2</sup> However, up to 30% of patients already have advanced disease at the time of diagnosis, and more than 90% of metastatic patients die within 5 years.<sup>2</sup> Considering these poor long-term outcomes, treatment options so far have proven more palliative than curative.<sup>3</sup> Therefore, the search for actionable biomarkers is and will continue to be a critical research point in the development of more effective RCC therapy.

Empire Genomics' renal cell carcinoma FISH panel is made up of probes that detect gene aberrations frequently found in the disease. In a recent study, our TFEB break-apart probes were used to detect TFEB gene translocations in RCC, in order to distinguish TFEB-amplified from TFEB-rearranged tumors.<sup>4</sup> This is an important distinction, as amplified RCC typically exhibits more aggressive behavior.

Each probe comes in a set of 20 test kits and usually ships within 7-10 business days.

GENE PROBE	LOCATION / STS	DYE COLOR	SKU
FLCN	17p11.2	●	FLCN-20-OR
HIF1A	14q23.2	●	HIF1A-20-OR
MET	7q31.2	●	MET-20-OR
PD-L1 (CD274)	9p24.1	●	PDL1-20-OR
PD-L1/Con9	9p24.1/9q21.33	● ●	PDL1-Con9-20-ORGR
SMARCB1	22q11	●	SMARCB1-20-OR
SMARCB1 Break-Apart	22q11.23	● ●	SMARCB1BA-20-GROR
TFE3	Xp11.23	●	TFE3-20-OR
TFE3 Break-Apart	Xp11.23	● ●	TFE3BA-20-GROR
TFEB	6p21.1	●	TFEB-20-OR
TFEB Break-Apart	6p21.1	● ●	TFEBBA-20-ORGR

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1. Heolio.com. (2019). Despite promising new regimens, search for cure is 'highest priority' in advanced renal cell carcinoma.  
 2. Ricketts, Christopher J., et al. "The cancer genome atlas comprehensive molecular characterization of renal cell carcinoma." Cell reports 23.1 (2018): 313-326.  
 3. Skarzynski, Jessica. "Future of Renal Cell Carcinoma: Hope Is on the Horizon." Cure Today, Cancer Updates, Research & Education, 10 July 2019.  
 4. Wyvekens, Nicolas, et al. "Histological and molecular characterization of TFEB-rearranged renal cell carcinomas." Virchows Archiv 474.5 (2019): 625-631.